Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Title V Draft Permit No. V-00-022
WESTLAKE MONOMERS CORPORATION
WESTLAKE CA&O CORPORATION
CALVERT, CITY, KENTUCKY
June 7, 2000
KUMAR POLE, P.E.
Plant ID# 21-157-00039
Application Log # F903

SOURCE DESCRIPTION:

This permit covers two plants within the Westlake Group of Companies - the *CA&O plant* and the *Monomers plant*, combined these plants will be referred to as the *facility*. The facility has SIC codes of 2812, 2869. The facility is classified as a major source under 40 CFR Part 70 due to its emissions of carbon monoxide, nitrogen oxides, particulate matter (PM/PM_{10}), volatile organic compounds (VOC) and combined emissions of hazardous air pollutants (HAP).

The *Westlake CA&O* plant consists of two process units - Chlor-Alkali and Olefins and a utilities department (Energy & Environmental). The Chlor-Alkali portion processes brine to produce chlorine, sodium hydroxide, and hydrogen using an electrolytic cell. The Olefins or Ethylene portion of the plant processes propane (through thermal cracking) to produce ethylene and other co-products. The Energy & Environmental process unit provides utilities for the Westlake CA&O plant and manages the wastewater treatment plants.

The *Westlake Monomers* plant produces vinyl chloride monomer through the thermal decomposition of 1,2 dichloroethane (EDC) to form vinyl chloride (VCM) and hydrogen chloride (HCl). The resulting products then go through a series of distillation and recovery steps to recover the VCM. The EDC-VCM process consists of 8 main sections - EDC Thermal Cracking, VCM-HCl Distillation, Hydrogenation Reaction, EDC Oxychlorination Reaction, EDC Recovery, EDC High Temperature Reaction, EDC Distillation, Catoxid Reaction. Additionally, there are four secondary sections - Vent Gas Recovery, Vent Gas Incineration, HCl Absorption, and Vent Gas Scrubbing.

COMMENTS:

a. Types of control and efficiency:
There are several controls devices throughout the Westlake CA&O and Monomers plants:

EMISSION POINT	CONTROL DEVICE	POLLUTANT(S)	EFFICIENCY
813	Sodium Hypochlorite Tower	Chlorine	99%
887	Low Pressure Scrubber	Chlorine	99%
877	Atmospheric Scrubber	Chlorine	99%
818	Wet Scrubber	Mercury	99%
321	Ethylene Flare	HAPs, VOCs	99.8%
342	River Flare	HAPs, VOCs,	99.8%
453	Oxy Incinerator	HAPs, VOCs,	98%
524	Vinyl Chloride Flare	HAPs, VOCs,	99%
530	Primary Thermal Incinerator	HAPs, VOCs,	98%

b. Emission factors and their source:
A combination of AP-42 emission factors, material balance, and stack test data was used to estimate emissions, see application for details.

c. Applicable regulations:
The following regulations apply to the Westlake CA&O plant:

1. 401 KAR 61:015, *Existing indirect heat exchangers*, applies to Boilers #1, #3, and #4.
2. 401 KAR 63:010, *Fugitive emissions*, applies to the Salt Handling and Transfer Operations and the Cooling Towers (052, 364, 849, 881).
3. 401 KAR 63:020, *Potentially hazardous matter or toxic substances*, applies to the emissions of chlorine from the Sodium Hypochlorite (813), Low Pressure (887) and Atmospheric Scrubbers (877). While there is not specific limit for chlorine emissions, the permittee is required to continue using the scrubbers to control chlorine emissions since the permittee has relied upon the controlled emission rates to avoid review under 63:021 and 63:022.
4. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart E, *National emission standard for mercury*, applies to the mercury emissions from the chlorine plant.
5. 401 KAR 63:015, *Flares*, applies to the Ethylene and River Flares.
6. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart J, *National emission standard for equipment leaks (fugitive emission sources) of benzene*, applies to the pipeline equipment in benzene service.
7. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart FF, *National emission standard for benzene waste operations*, applies to the Ethylene Wastewater Pre-treatment Plant and the following tanks - TK-191, TK-195, TK-196, TK-198A, TK-198B, TK-201, TK-202, TK-211 and TK-1850.

8. 401 KAR 60:005, which incorporates by reference federal regulation 40 CFR 60 Subpart Kb, *Standards of performance for volatile organic liquid storage vessels*, applies to the following tanks - TK-191.
9. 401 KAR 59:095, *New oil-effluent water separators*, applies to the following units - TK-192A, TK-192B, TK-194A, TK-194B, and TK-194C.
10. 401 KAR 63:002, which incorporates by reference federal regulation 40 CFR 63 Subpart G, *National emission standard for organic hazardous air pollutants from the synthetic organic chemical manufacturing industry for process vents, storage vessels, transfer operations, and wastewater*, applies to the 445, 446 tanks and the Wastewater Stripping Operation.

The following regulations apply to the Westlake Monomers plant:

1. 401 KAR 63:002, which incorporates by reference federal regulation 40 CFR 63 Subpart G, *National emission standard for organic hazardous air pollutants from the synthetic organic chemical manufacturing industry for process vents, storage vessels, transfer operations, and wastewater*, applies to the No. 1, 2, 5, 6, 7, 8, and 9 EDC Shore Tanks, North/South Cracking Sump Tank, East Cracking Sump Tank, Oxychlorination Reactor Emergency Vent, Vacuum Column Feed Tanks 1 and 2, Oxy Incinerator, and Primary Thermal Incinerator,
2. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart F, *National emission standard for vinyl chloride*, applies to the Oxy and Primary Thermal Incinerators. However, pursuant to 40 CFR 63.110(f), the permittee is only required to comply with the provisions of 40 CFR 63 Subpart G.
3. 401 KAR 61:020, Existing Process Operations, applies to the North, South, and East Decoking Pots.
4. 401 KAR 63:015, *Flares*, applies to the Vinyl Chloride Flare.
5. 401 KAR 63:002, which incorporates by reference federal regulation 40 CFR 63 Subpart H, *National emission standard for organic hazardous air pollutants for equipment leaks*, applies to the pipeline equipment in organic HAP service (F1 and F2).
6. 401 KAR 60:005, which incorporates by reference federal regulation 40 CFR 60 Subpart VV, *Standards of performance for equipment leaks of VOC in the synthetic organic chemicals manufacturing industry*, applies to the pipeline equipment in VOC service (F3).
7. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart F, *National emission standard for vinyl chloride*, applies to the pipeline equipment in *vinyl chloride service* listed above (F2).
8. 401 KAR 57:002, which incorporates by reference federal regulation 40 CFR 61 Subpart V, *National emission standard for equipment leaks*, applies to the pipeline equipment in *vinyl chloride service* listed above (F2).

   Note - For the purposes of this permit, the requirements of 40 CFR 60 Subpart VV, 40 CFR 61 Subparts F and V, and 40 CFR 63 Subpart H have been streamlined as provided in U.S. EPA White Paper Number 2 (March 5, 1996) on Part 70 Operating Permits. As a result, to satisfy the requirements of the four applicable regulations for pipeline equipment listed above, *the permittee is only required to comply with 40 CFR 63 Subpart H for Emission Points F1, F2, and F3*. All pipeline equipment in VOC, VHAP or vinyl chloride service shall be considered, for purposes of applicability and compliance with Subpart H, as if it were in organic hazardous air pollutant (HAP) service. Compliance with Subpart H shall be deemed to constitute compliance with Subparts VV, F, and V.
9. 401 KAR 63:010, Fugitive emissions, applies to the South Synthesis, East Cracking and South Cracking Cooling Towers (457, 458, 459).

d. Anything unusual about the:

1. Emission point number and description -
   This permit also authorizes modification of the Westlake Monomers plant as part of a Process Improvement Project. This project will affect the following emission units:

Emission Point	Description
438	No. 1 EDC Shore Tank (*existing facility, increased throughput*)
439	No. 2 EDC Shore Tank (*existing facility, increased throughput*)
454	No. 5 EDC Shore Tank (*existing facility, increased throughput*)
455	No. 6 EDC Shore Tank (*existing facility, increased throughput*)
459	South Synthesis Cooling Tower (*existing facility, addition of a new cell to the tower*)
734	No. 7 EDC Shore Tank (*existing facility, increased throughput*)
735	No. 8 EDC Shore Tank (*existing facility, increased throughput*)
736	No. 9 EDC Shore Tank (*existing facility, increased throughput*)
F1	Organic HAP Fugitives (*existing facility, increased throughput, addition of new pipeline equipment*)
F2	Volatile HAP Fugitives (*existing facility, increased throughput, addition of new pipeline equipment*)
F4	Other Fugitives (*existing facility, increased throughput, addition of new pipeline equipment*)

   With the exception of the addition of a new cell at the South Synthesis Cooling Tower, this project will not involve any new construction. The emissions increases resulting from this project will not trigger any additional applicable requirements for the Monomers plant.

2. Regulation that are not applicable -
   No

EMISSION AND OPERATING CAPS DESCRIPTION:
The following units are subject to synthetic minor limits taken to preclude applicability of PSD (401 KAR 51:017, *Prevention of Significant Deterioration of Air Quality*) review:

EMISSION POINT	EMISSIONS UNIT	POLLUTANT	SYNTHETIC MINOR LIMIT	BASIS
008	Boiler #1	PM/PM_{10}	50.6 tpy	Permit O-88-040
		SO_2	104.0 tpy	Permit O-88-040
010	Boiler #3	PM/PM_{10}	57.7 tpy	Permit O-88-040
		SO_2	118.9 tpy	Permit O-88-040
011	Boiler #4	PM/PM_{10}	80.2 tpy	Permit O-88-040
		SO_2	165.4 tpy	Permit O-88-040

OPERATIONAL FLEXIBILITY:
Not Applicable

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.